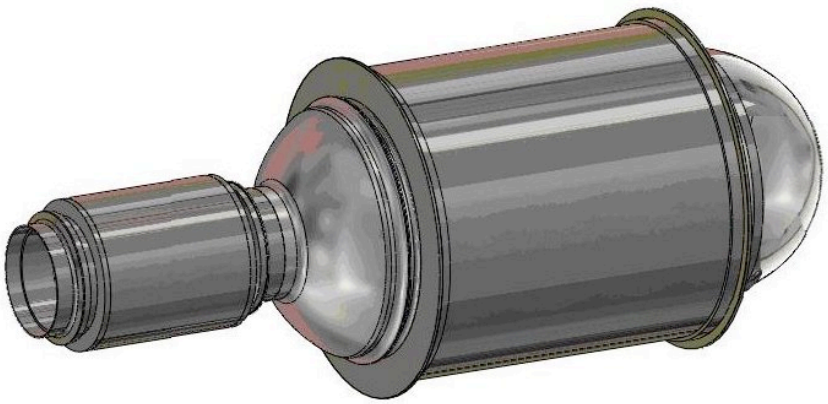
Halyard



PUREGEN

Manual

General	3
Safety measures	3
Identification	4
Unit	5
Operation	6
PUREGEN Control	7
Maintenance	9
Failures	10
Technical support	11
PUREGEN Parts	12
Heating Element Parts	13
Pressure Sensor Instructions	14
Electronics diagram	15
Drawings	16

GENERAL

This manual for the owner is only intended for information. The information is not necessarily complete and should not be considered as a discussion of all possible conditions. If you would like to have more information, please contact Halyard M & I.

SAFETY MEASURES

Before operating the PUREGEN unit or carrying out maintenance work please carefully read this user manual.

Always check that the engine of the Generator is not running during the maintenance.

Disconnect the battery from the Generator during the maintenance.

Do not touch any components of the electrical or heating systems when the unit is in operation, these components may be hot.

Conditions for sound functioning of the catalyst and the soot filter:

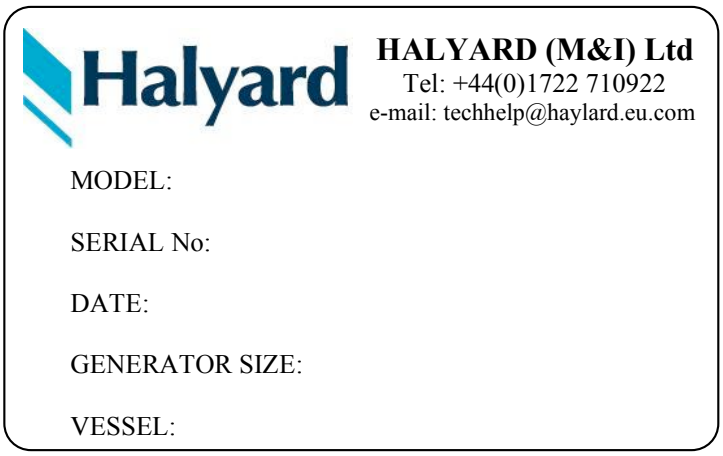
- Oil consumption ≤ 1.0 ltr/1000 km.
- Lubricating oil as recommended by the engine manufacturer.
- K-value not higher than maximum value stated by the engine manufacturer, measured with the APK procedure (periodic motor vehicle test).
- Good state of repair of the diesel engine.
- Diesel fuel must comply with engine manufacturer's recommendations. Nominally this is Gasoil grade or D2 diesel which has a maximum sulphur content of 2,000ppm

IDENTIFICATION

Each unit can be identified on the basis of a type plate. This type plate includes the following data:

- Model.
- Serial number.
- Year of construction.
- Generator size.
- Vessel

The PUREGEN system has the identification plate mounted on the inside of the control box. In the event of having to contact Halyard, ensure you have the data from the identification plate before consulting our technical service department. This will enable Halyard to deal with your enquiry as efficiently as possible.

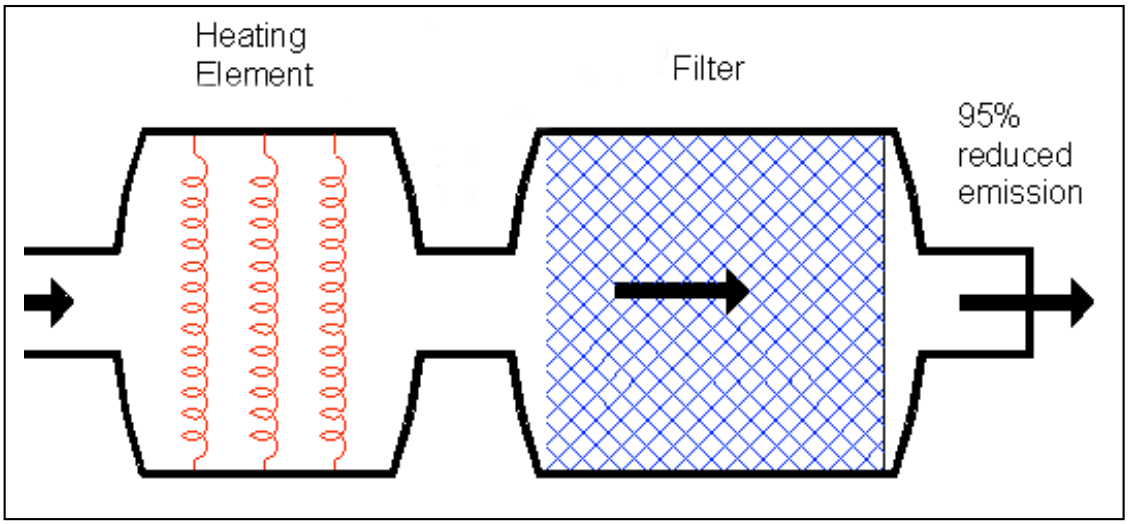


THE UNIT

The PUREGEN system offers the solution to reduce particulate matter (PM) emissions for all marine diesel generators, including those under operating conditions of low or variable loads. By heating the exhaust gases in front of the soot filter, the temperature required for regeneration is achieved without a problem.

The PUREGEN system consists of a heater unit that can be either operated for 10 minutes per hour, or continuously therefore acting as a small load bank for the generator. The choice of operating method can be simply changed at the control box. Either method ensures that the exhaust gases are heated sufficiently to fully regenerate the soot filter.

By constantly regenerating the soot filter, the PUREGEN system adds only 2.5 to 10 mbar of backpressure.



OPERATION

In order to realise a sound regeneration of the soot filter, the exhaust gas temperature has only to exceed the minimum required temperature for a few minutes every hour, which the engine is running. This can be achieved either using the timed or continuous PUREGEN functions.
The operation of the PUREGEN is fully automated.

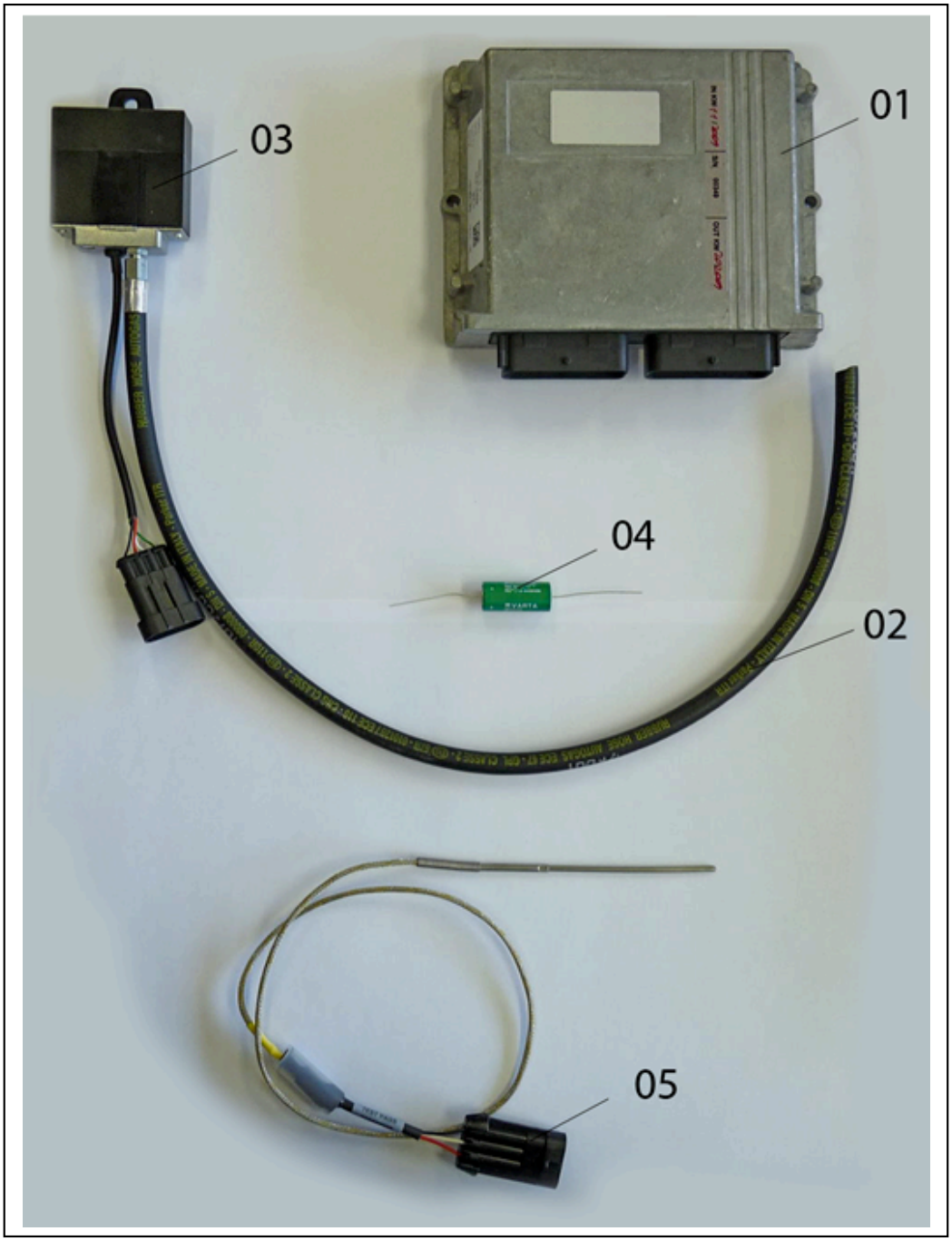
Timed function
This function allows the heater to be activated for 10 minutes in every hour that the generator is running. The heater raises the exhaust gas temperature to 400°C, at this point the thermocouple shuts off the heater allowing the gas temperature to fall to 350°C. The thermocouple then allows the heater to operate, raising the temperature once again.
The cycle continues for 10 minutes. Once this time has elapsed the heater will operate again for the next 50 minutes allowing the exhaust gas temperature to fall to its normal level.

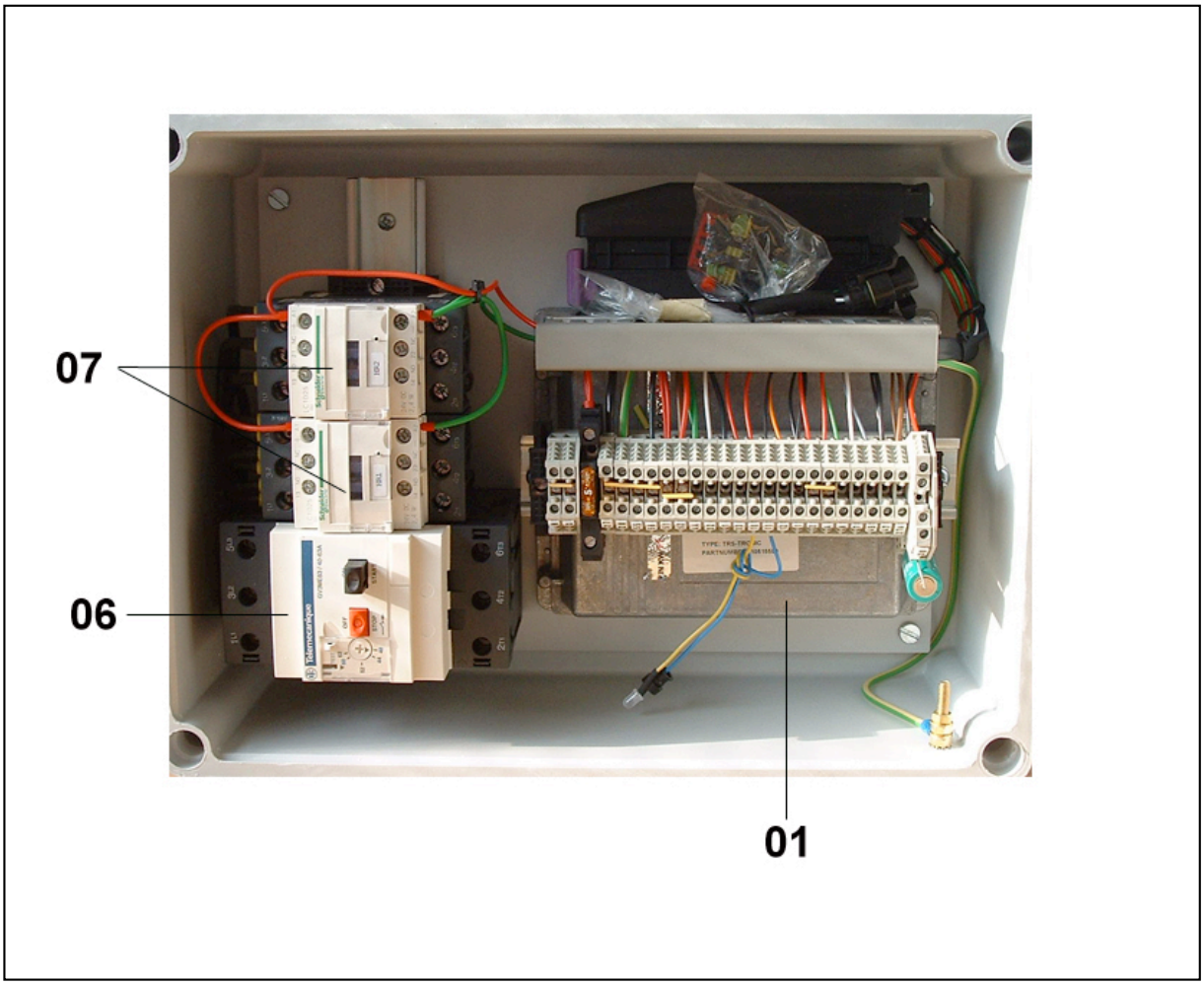
Continuous function
This function continuously operates the heater when ever the generator is running. The heater raises the exhaust gas temperature to 400°C, at this point the thermocouple shuts off the heater allowing the gas temperature to fall to 350°C. The thermocouple then allows the heater to operate, raising the temperature once again.
This cycle continues continuously with the thermocouple controlling the operation of the heater.

PUREGEN does not operate on a “back-pressure build up” system. These types of product collect soot deposits on the filter and once an amount has been collected, increasing back-pressure, regeneration take place.

PUREGEN CONTROL

PUREGEN controls and monitoring equipment.



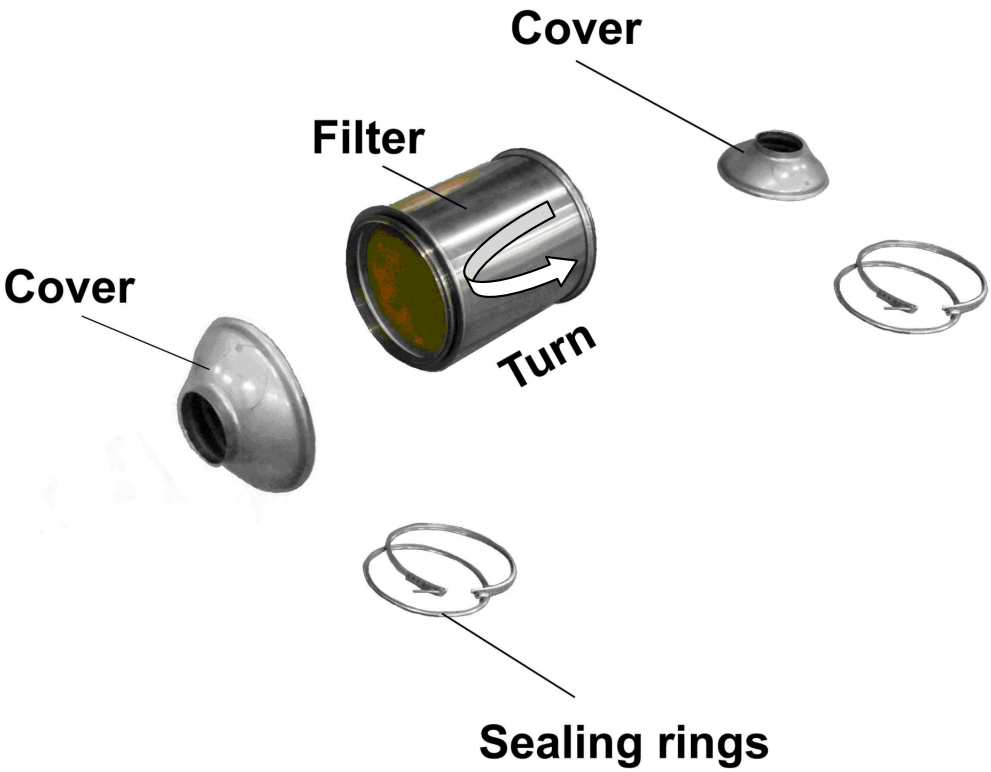


Item	Ref No	Description	Qty
01	10515580	PUREGEN Control	1
02	10515592	Hose	1
03	10515590	Pressure Sensor Box	1
04	10515582	Capacitor	1
05	10515550	Sensor	1
06	10116800	Motor safety device	1
07	10113800	Relays	2

MAINTENANCE

a) Inspection twice a year of the system regarding its sound functioning, which consists of:
   - measuring the backpressure
   - inspecting the various electric fuses
   - inspecting the functioning of the optical /acoustic alarms
   - a visual inspection of the entire system
   - testing and inspecting the achieved temperature

b) Turning and cleaning the soot filter system (carefully with compressed air) once a year



FAILURES

The PUREGEN system has several safeguards to protect the heating element, soot filter and generator against damage.
The monitoring and controlling of the PUREGEN system is done by PUREGEN control.

Safeguards:

- Thermal safeguard element (400°C) (automatic reset – no failure)
- Control current fuse (2 amp)
- Main current fuse (40 amp)
- Back pressure safeguard

A failure in the system is indicated by a colouring of the LED. If necessary, the unit will switch itself off.
If the RED colour of the LED is illuminated, immediately contact Halyard (M&I) ltd.
Once the RED colour of the LED is illuminated, the PUREGEN system can be run for a maximum of 3 hours. Running in this condition does not use the heater, resulting in exhaust gas temperature not reaching regeneration temperature. Further use in the RED LED condition without consultation with Halyard (M&I) Ltd may cause damage to the soot filter.

Colours LED

GREEN: Normal functioning, no errors.

Flashing ORANGE: Input voltage too low, insufficient thermal output.

ORANGE: Higher backpressure than allowed.

RED: Problem with filter: pressure too high for a long period.
Scheduled maintenance according to operational hours.

GREEN / ORANGE flashing: PUREGEN Control defect.

ORANGE / RED flashing: Urgently examine the PUREGEN Control.

If the LED flashes or turn ORANGE, it can return to green if the failure is solved automatically.

TECHNICAL SUPPORT

For technical support please ensure you have the information contained on the IDENTIFICATION PLATE, which is located inside the control box. This will enable the Halyard technical support team to deal with your enquiry in the most efficient possible manner.

Halyard (M & I) Limited
Whaddon Business Park,
Southampton Road,
Whaddon, Nr. Salisbury,
SP5 3HF
United Kingdom

Phone: +44 (0)1722 710922 Fax: +44 (0)1722 710975

e-mail: techhelp@halyard.eu.com

website: www.halyard.eu.com

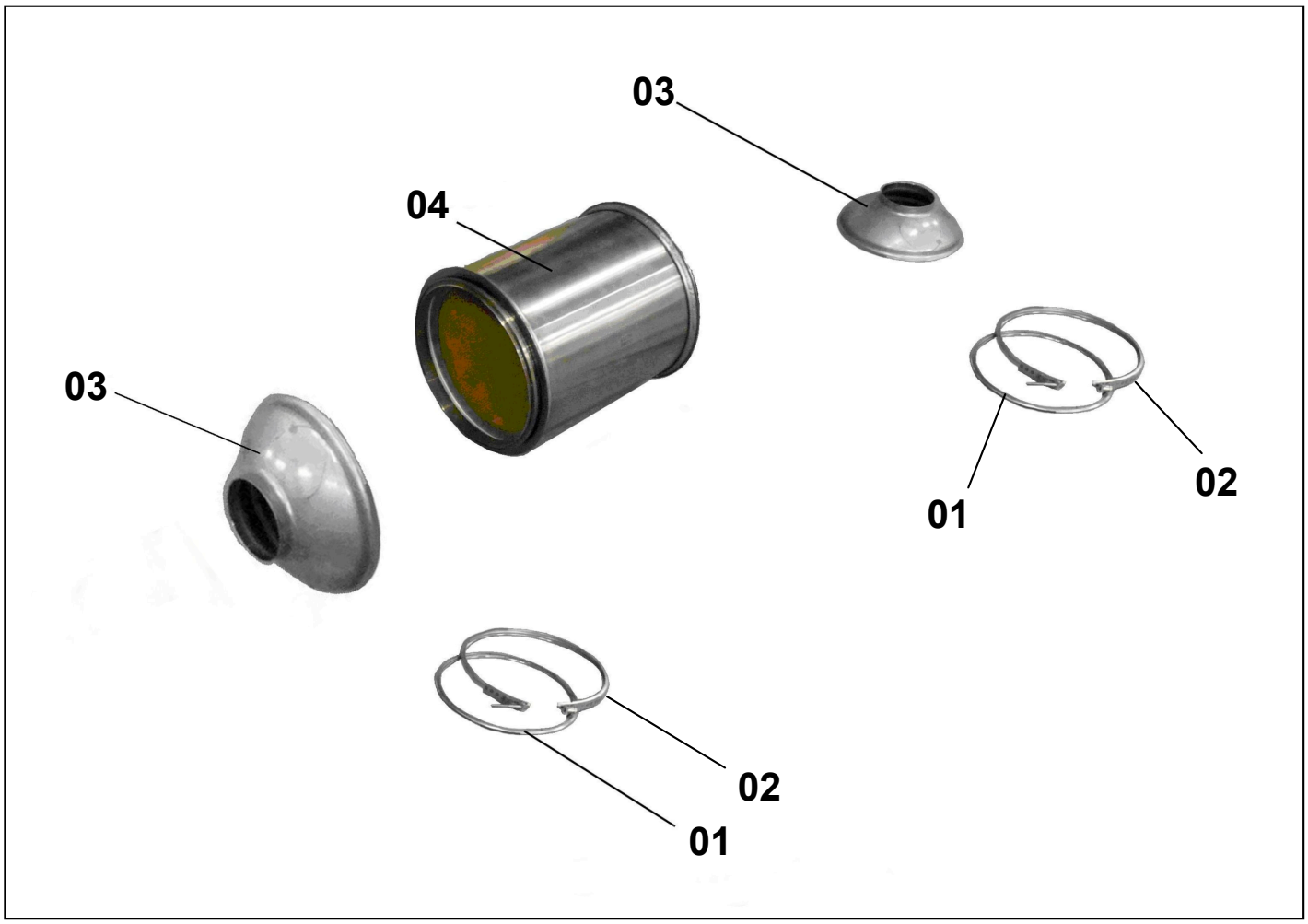
GUARANTEE

Halyard M&I Ltd offers a 12-month guarantee on the material and assembly. The replacement and/or repair of components under guarantee must be carried out by Halyard M&I Ltd technicians or appointed personnel only.

Any replacement and/or repair outside of routine maintenance, carried out by non-Halyard personnel must have prior approval from Halyard before work is started

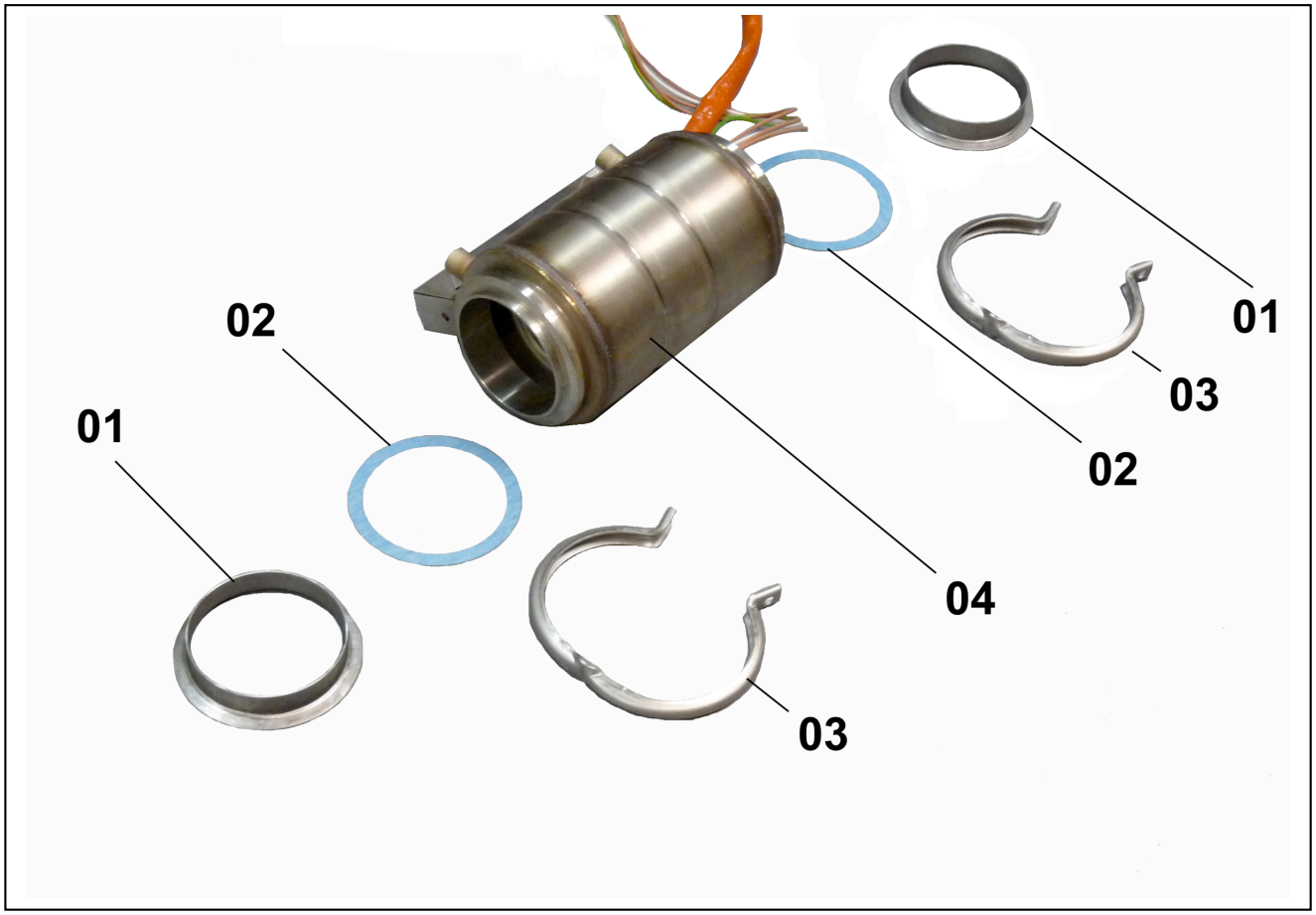
If you want to make use of the guarantee during the guarantee period, please contact Halyard M&I Ltd. We will be pleased to help you.

PARTS CRT-FILTER



Item	Ref No	Description	Qty
01	13215510	Sealing ring	2
02	13400250	Clamp	2
03	13218500	Cover Ø270 x Ø114	2
04	13223580	Soot filter	1

PARTS HEATING ELEMENT



Item	Ref No	Description	Qty
01	13215200	Flange Element	4
02	13215505	Gasket	4
03	13215800	Clamp	4
04	4213	Heat Element	2

Note Item No 1. To be welded to Cover (ref no. 13218500), shown on page12

INSTRUCTION PRESSURE SENSOR BOX

measure point
before filter

CAUTION:

Use the original hose; do not alter its length.
Mount the pressure sensor box before and near to the filter.
Ensure no loops in the hose; this is to prevent areas for condensation to build up.